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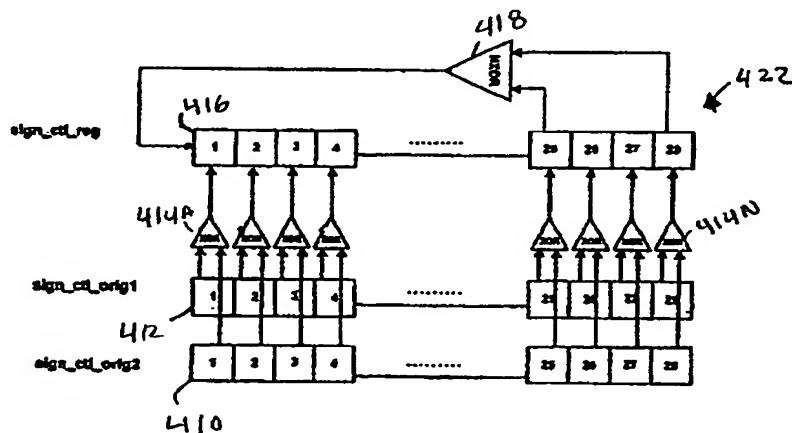
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(54) Title: ULTRA WIDEBAND SCRAMBLER FOR REDUCING POWER SPECTRAL DENSITY



(57) Abstract: Scrambling methods for scrambling ultra wideband (UWB) data are disclosed. UWB data (420) having payload data and non-payload data is scrambled (422, 424) by shifting a first bit string (412) a first number of bits, shifting a second bit string (410) a second number of bits, combining (414A - 414N) the first and second shifted bit strings, generating (418) scrambler control bits (416) from the combined first and second shifted bit strings, and scrambling (424) at least a portion of the UWB data responsive to the scrambler control bits. According to another aspect, UWB data is scrambled by scrambling payload data using a pseudo-random number generator having a seed set of multiple seeds having low seed correlation, each seed within the seed set having a predefined number of bits, and selectively applying random frame reversion (428, 430) to non-payload data and/or to entire frame of data.

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